

## REMARKS

Entry of this Amendment is proper because it narrows the issues on appeal and does not require further searching by the Examiner.

Claims 2-6 and 19-29 are all the claims presently pending in the application. Claim 2 has been amended to more particularly define the invention. Claim 1 has been canceled.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

**Claims 1-6** stand rejected under 35 U.S.C. 112, first paragraph as allegedly failing to comply with the written description requirement. Applicant notes that claim 1 has been canceled. In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

**Claims 19-29** stand rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite. However, Applicant submits that these claims are clearly defined and not indefinite. Indeed, Applicant would point out that an exemplary aspect of the claimed invention is clearly illustrated in Figure 2 which depicts a circuit including a first metal layer 102 formed on a substrate, an insulating layer 110 formed on the first metal layer, a second metal layer 112 formed on the insulating layer 110, a first self-assembled organic semiconductor material 120 formed on a first side of the first metal layer 102, and a second self-assembled organic semiconductor material 122 on a second side of the first metal layer 120. In addition, Figure 1D illustrates an exemplary aspect of the claimed invention including a self-assembled nanowire 124 formed between a first metal layer 102 and at least one of said first and second self-assembled organic semiconductor materials 120, 122. In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

**Claims 19-24 and 26-29** stand rejected under 35 U.S.C. 102(e) as being allegedly unpatentable over Brown et al. (U. S. Patent No. 6,340,822).

This rejection is respectfully traversed in view of the following discussion.

### I. THE CLAIMED INVENTION

An exemplary aspect of the claimed invention (e.g., as recited in claim 2) is directed to a circuit including a first metal layer on a substrate, an insulating layer on the first metal layer, a second metal layer on the insulating layer, a self-assembled first semi-conductivity

type material on one side of the first metal layer, and a self-assembled second semi-conductivity type material on the other side of the first metal layer.

Importantly, the circuit also includes a self-assembled nanowire extending between a field concentrator on the second metal layer and at least one of the first semi-conductivity type material and the second semi-conductivity type material to form the self-assembled connection (Application at Figures 1D, 2).

Convention circuits are formed using lithographic techniques. However, this requires many expensive processing steps (Application at [0005]).

The claimed circuit, on the other hand, includes a self-assembled nanowire extending between a field concentrator on the second metal layer and at least one of the first semi-conductivity type material and the second semi-conductivity type material to form the self-assembled connection (Application at Figures 1D, 2). The claimed circuit may be formed without the expensive lithographic techniques required by conventional circuits.

## **II. DEMAND FOR COMPLETE OFFICE ACTION**

Applicant notes that the Examiner alleged that claims 20-24 and 26-29 were anticipated by Brown. However, the Examiner neglected to indicate where Brown allegedly teaches the limitations of these claims.

Therefore, the Office Action is incomplete and the Examiner is required to provide Applicant with ANOTHER OFFICE ACTION which properly addresses the limitations of these claims.

## **III. THE ALLEGED PRIOR ART REFERENCE**

The Examiner alleges that Brown teaches the invention of claims 19-24 and 26-29. Applicant submits, however, that Brown does not teach or suggest each and every feature of the claimed invention.

In particular, Brown does not teach or suggest a circuit including "*a self-assembled nanowire extending between a field concentrator on said second metal layer and at least one of said first semi-conductivity type material and said second semi-conductivity type material to form said self-assembled connection*", as recited, for example, in claim 19. As noted above, the claimed circuit may be formed without the expensive lithographic techniques required by conventional circuits.

Clearly this feature is not taught or suggested by Brown. Indeed, the Examiner attempts to equate the metallic carbon nanotubes 4a in Brown with the self-assembled first semi-conductivity type and the self-assembled second semi-conductivity type material, and

the nanowires 4b with the self-assembled nanowire extending between a field concentrator on the second metal layer and at least one of the first and second semi-conductivity type materials. This is completely unreasonable for MANY reasons.

First, the metallic carbon nanotubes 4a in Brown are clearly conductors and are clearly not a "semi-conductivity type" material.

Second, nowhere does Brown teach or suggest that the metallic carbon nanotubes 4a may include first and second "types" and certainly does not teach or suggest that the nanotubes 4a may have a first and second semi-conductivity type.

Third, nowhere does Brown teach or suggest that the metallic carbon nanotubes 4a are self-assembled. Instead, Brown teaches that the "composite nanowires may be grown in an aligned fashion on a dissolvable substrate" (Brown at col. 10, lines 45-46). Indeed, this is a significant detail that is completely ignored by the Examiner.

Fourth, the metallic carbon nanotubes 4a are all formed on the same side of contact pads 12a, 12b. That is nowhere does Brown teach or suggest a nanotube 4a formed on one side of a contact pad, and another nanotube 4a formed on the other side of the contact pad.

Fifth, assuming that the Examiner is attempting to equate the solder 38 with the second metal layer of the claimed invention (the Examiner does not indicate), nowhere does Brown teach or suggest that the solder 38 includes a field concentrator. Therefore, Brown certainly does not teach or suggest a nanowire extending between a field concentrator on the second metal layer and at least one of the first and second semi-conductivity type materials.

Sixth, the Examiner attempts to equate the semiconductor wire 4b with the self-assembled nanowire of the claimed invention. However, as noted above, nowhere does Brown teach that the composite nanowires 4a and 4b are "self-assembled".

Thus, Brown clearly does not teach or suggest a circuit including a self-assembled nanowire extending between a field concentrator on the second metal layer and at least one of the first semi-conductivity type material and the second semi-conductivity type material to form the self-assembled connection, as in the claimed invention.

Therefore, Applicant submits that Brown does not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

### **III. FORMAL MATTERS AND CONCLUSION**

Applicant notes that the specification has been amended to address the Examiner's

new matter objection thereto.

In view of the foregoing, Applicant submits that claims 2-6 and 19-29, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,



Date: May 28, 2009

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